

Venomous Creatures of Tennessee

By Lisa Powers

A popular hit song of the 1970s written by Jim Stafford and David Bellamy proclaimed, "I don't like spiders and snakes." Unfortunately this is a sentiment that is shared by many and readily extended to other critters like bees, wasps, bugs and scorpions. But all of these creatures are important, if misunderstood, members of our ecosystems.

Many of these creatures are feared because they have the potential to harm or even kill. They are the ones that produce venom. What is venom? The American Heritage Dictionary of Science defines venom as, "a poisonous substance secreted by special glands of some snakes, spiders, scorpions, lizards, and similar animals, who inject it into their prey or enemy by biting or stinging." In the scientific world, venom is injected, while poison is ingested. Therefore spiders and snakes are considered venomous rather than poisonous. A few examples of poisonous animals are frogs, newts and jellyfishes. A poison is generally distributed throughout the tissues of an animal's body.



Although many snakes receive a reputation as being aggressive, like this Western Cottonmouth, they really prefer to avoid encounters with humans.

Photo by Lisa Powers

What are the creatures in Tennessee that are known to be venomous?

Snakes

There are 32 species of snakes in Tennessee, but only four* of these have venom that is potentially dangerous to humans.

How do you tell the venomous snakes from the harmless ones? All of the venomous snakes native to Tennessee belong to the family of snakes called pit vipers. Pit vipers are the group of venomous snakes having a specialized, heat-sensing pit on the front of the head. They have a vertical, elliptical-shaped eye pupil (harmless species of Tennessee snakes have a round eye and lack facial pits). Our venomous snakes are generally heavy bodied animals; and because of this are not very good climbers. They are ovoviviparous; meaning they retain the eggs within the body until the young are expelled in a membranous sac, ready to face the world. Note: Most water snakes are also ovoviviparous and should not be confused with the pit vipers.

They have triangular shaped heads that are offset from the body, although many water snakes and hognose snakes can flatten the head making it appear somewhat triangular. They have a single row of scales on the underside from the vent to the tip of the tail, whereas all of our nonvenomous snakes have an overlapping row of two scales on the underside from the vent to the tail tip. Note: This detail is best observed on the shed skin of a snake.

What are the four snake species that may be dangerous when encountered?

*There are two species of Tennessee snakes that produce weak venom but are considered totally harmless to humans and their pets. They are the rear-fanged Eastern Hognosed Snake (*Heterodon platirhinos*) that feeds primarily upon toads; and the secretive, diminutive Southeastern Crowned Snake (*Tantilla coronata*) that feeds upon earthworms, spiders and centipedes.

Tips for Avoiding Snakebite:

- Do not try to catch, handle or kill snakes. This is how many bites occur. Stay at least a body length away from a snake unless you are certain it is nonvenomous.
- Keep your landscape well-manicured. Snakes like to hide in thick brush and underneath old boards and debris.

- Wear shoes when outside and gloves when weeding.
 - Wear loose-fitting clothes and leather boots when exploring the outdoors. Leather boots provide protection for the feet and ankles. Low cut shoes or sandals should never be worn in snake country, especially at night. Rattlesnake fangs can penetrate clothing and loose fitting clothes are better than tight styles.
 - Do not jump or step over logs, rocks, or shrubs. Walk around them instead. Be very careful when turning over logs, rocks or other large objects as a snake may be underneath. When hiking, watch where you step, stay on paths or in clearings and avoid tall, grassy areas with heavy underbrush. Develop the habit of watching where you place your feet and hands.
- Insects and Arachnids (Arthropods)

In the United States, millions of people are injured each year from venoms produced by insects and other arthropods. According to the 2002 report "Stinging or Venomous Insects and Related Pests," written by P. G. Koehler and D. E. Short and copyrighted by the University of Florida, Institute of Food and Agricultural Sciences (UF/IFAS), "Of these injuries about 25,000 result in severe injuries and about 32 result in deaths." The report goes on to state, "Of individuals who die from arthropod venoms, 96 percent had an allergic reaction."

Spiders

Black Widow Spider – *Latrodectus mactans*

With its legs extended, the Black Widow Spider is about 1 1/2 inches long or the size of a quarter. It has a black body with the trademark red or yellow hourglass mark is on its underside. Black Widow Spiders like dark, moist habitats and are often found in basements, woodpiles, rock walls and meter boxes. The web is very sticky and resembles a cobweb.

The bite mark of the Black Widow may be hard to distinguish from other marks. Symptoms of a bite may include profuse sweating, nausea, vomiting, and headache while severe symptoms include cramping, muscle stiffness, and muscle spasms.

Brown Recluse Spider – *Loxosceles reclusa*

Brown Recluse Spiders live up to the name, as they prefer reclusive habitats. They like heat and the darkness and can be found in outbuildings, under houses, in attics, closets and especially like the seclusion provided by books and boxes.

Symptoms of a Brown Recluse bite include fever, nausea, vomiting, chills, headache, and weakness. A "red, white and blue" area may form around the bite site as the venom spreads and destroys tissue. Pain may occur at the bite six to eight hours after the bite.

At 48 hours, there may be itching, redness, blisters. A dark, almost black, crust may form at the bite site.

Bees, Wasps and Hornets

Bees and wasps are venomous insects whose stings produce a variety of symptoms ranging from minor pain and swelling to fatal allergic reactions. Bees are well known for their production of honey and their importance as pollinators. Many wasps and hornets are excellent predators of agricultural pests and other insects.

Honey Bees have barbed stingers that usually remain in the sting. Honey Bees can only sting once. Wasps and hornets do not have barbed stingers and can sting repeatedly.

Tips on Avoiding Bee, Wasp and Hornet Stings:

- Don't wear perfume or scented lotions.
- Don't wear blue clothing. It seems to be associated with more unprovoked stings.
- Avoid threatening a hive by approaching too closely or by making loud noises or vibrations.
- When hiking, wear boots or proper footwear and don't go barefoot in the yard.
- Don't swat or move rapidly when a wasp or yellow jacket visits you or your food; move slowly!

- Sweet items like soft drinks, desserts and ripened fruit attract bees and wasps. When outdoors, keep these items covered and look carefully before you drink or eat.

Scorpions

Tennessee is home to two species of scorpion, the Southern Unstriped Scorpion and the introduced Striped Scorpion (*Centruroides vittatus*). Rocky hillsides, crumbling rock faces, brick walls, crawl spaces, leaf-covered areas, and log piles are favorite scorpion habitats.

The sting of these scorpions is considered mild. The sensation is a sharp pain that usually lasts for 15 to 20 minutes. Reactions can vary depending on age or sensitivity of the individual and the amount of venom injected. Persons stung during early March or April by scorpions just emerging from winter hiding places may have pain that lasts for several hours and a general numbness in the area.

Tips to Avoid Scorpion Stings:

- Keep homes insect free to eliminate a scorpion's food source.
- Do not reach under rocks or logs with bare hands.
- Do not go barefoot at night in rocky or dry terrain.

Stinging Caterpillars

Stinging caterpillars are covered with hair-like, fragile hollow spines filled with venom. When the spines are broken by contact, venom passes through the spines onto the skin of people who come in contact with them. Symptoms may include burning, pain, swelling, and/or prolonged itching. In some cases, local lesions may persist for several days. Three caterpillars to watch out for are the Io Moth, Puss Moth and Saddleback.

Fire Ants

Red (*Solenopsis invicta*) and Black (*Solenopsis richteri*) Fire Ants are imported pests that negatively effect our environment and economy. Fire ants are aggressive and can inflict a painful, burning sting that causes a small, white blister or pustule to form at the site of each sting in 24-48 hours. The blisters become itchy while healing and are prone to infection if broken.

Centipedes

Centipede bites produce immediate pain, redness, itching and swelling that can persist for several hours. If swollen glands, irregular pulse, headache, dizziness, or vomiting occur seek medical attention.

Conenose Beetles

Although technically not venomous, these beetles deserve mention as they can cause severe allergic reactions. Assassin Beetles and Wheel Bugs feed upon insects; but humans are sometimes bitten by accidental contact. The bug penetrates the skin with its beak and injects a salivary fluid used to kill its prey. The fluid causes intense pain that lasts three to six hours.

Fish

The dorsal and pectoral fins of many species of catfish, particularly the small madtoms, have venomous spines. The spines are used for defense and can inflict painful wounds, although these are generally not life threatening.

Mammals

Many people may be surprised to find that Tennessee is home to two venomous mammals, the Northern Short-tailed Shrew (*Blarina brevicauda*) and the Southern Short-tailed Shrew, (*Blarina carolinensis*). They secrete venom from salivary glands in the lower jaw to paralyze prey. Only three to four inches long, short-tailed shrews, generally prey upon invertebrates, but will sometimes feed on small vertebrates and plants. These small rodents are considered harmless to humans.

While avoidance of venomous animals is the best policy, should you get bitten or stung be sure to get immediate medical attention if any of the following occur:

- Difficulty breathing
- Swelling of the lips or throat
- Slurred speech
- Chest pain
- Faintness
- Confusion
- Rapid heartbeat
- Hives
- Nausea, cramps and vomiting
- Venomous snakebite

(Lisa Powers is a contract biologist who designs and produces posters, Web sites, brochures, and informational handouts on the plants and animals of Tennessee. She also serves on the board of the Tennessee Herpetological Society. You can view her work on the Web site www.froghavenfarm.com/.)